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EXAMINER

MATTIS, JASON E

ART UNIT

PAPER NUMBER

2665

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,954

Applicant(s)

ZEIRA ET AL.

Examiner

Jason E Mattis

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/02 02/04 09/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-11, 15-22, and 26-32 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 4, 15, and 26, each of these claims contains the limitation, "an allowed number of the provided physical channels to be assigned to that channel." It is unclear what is meant by the above quoted limitation. For example, it is unclear what specific channel is being referred to as "that channel." The Applicants' specification discloses that there are limits on the amount of time slots and channels per slot that a code composite transport channel can support (See Page 6 of the Applicants' specification); however it is unclear if this is the intended limitation in the above quoted section. It is recommended that claims 4, 15, and 26 be rewritten to more clearly state and accurately reflect the invention disclosed in the Applicants' specification. Claims 5-7, claims 16-18, and claims 27-29 are also rejected under 35 USC § 112 due to their dependence on claims 4, 15, and 26 respectively.

With respect to claims 6, 17, and 28, each of these claims contains the limitation, "wherein the arranging the set of time slots into the sequences uses a figure of merit for

each slot of the set.” Since there is no prior mention of arranging the set of time slots into sequences in claims 6, 17, and 28 or the claims that these claims depend on, it is unclear what is meant by “the sequences”. It is recommended that these claims be amended to more clearly define what is meant by “the sequences”. It may be possible that claims 6, 17, and 28 should depend on claims 5, 16, and 27 respectively, since claims 5, 16, and 17 all clearly state arranging the set of time slots into “a plurality of sequences”.

With respect to claims 8, 19, and 30, claims 8 and 30 contain the limitation “an allowed number of the provided physical channels to be assigned to that time slot”. It is unclear what specific slot if any “that slot” is referring to. Claim 19 contains similar limitations to that of claims 8 and 30 with the term “that physical channel” in the place of the of the term “that time slot.” It is recommended that claims 8, 19, and, 30 be rewritten to more clearly claim the invention. Claims 9-11, claims 20-33, and claims 31-32 are also rejected under 35 USC § 112 due to their dependence on claims 8, 19, and 30 respectively.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4, 12-13, 15, 23-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Strat et al. (U.S. Pat. 6459690) in view of Olofsson et al. (U.S. Pat. 6134230).

With respect to claim 1, Le Strat et al. discloses a method for assigning physical channels to time slots (See column 3 lines 4-52 and Figure 4 of Le Strat et al. for reference to a method of allocating physical channels to time slots). Le Strat et al. also discloses providing physical channels for assignment and providing time slots for potential assignment (See column 3 lines 4-52 of Le Strat et al. for reference to channels and evaluating time slots to decide which time slot to assign to a channel). Le Strat et al. further discloses arranging the set of time slots into a sequence based on a quality of each of the set of time slots and assigning the provided physical channels to the time slots in a time slot order of the sequence (See column 3 lines 31-60 of Le Strat et al. for reference to measuring the quality of each of the available channels, or time slots, and selecting the best channel of a group of channels which are above the required threshold of acceptable signal quality, meaning there must be a value associated with the signal quality, with the quality of all the time slots being given a value according to the quality measurements, which creates a sequence from the best value to the worst value signal, with the time slots being allocated in the order starting with the best value signal). Le Strat et al. does not specifically disclose using the method in a hybrid wireless time division access/code division multiple access communication system.

With respect to claim 12, Le Strat et al. discloses a radio resource management device (See column 5 lines 18-64 and Figure 3 of Le Strat et al. for reference to a device, which is a radio resource management device, that determines the best time slot to allocate to a physical channel). Le Strat et al. also discloses arranging the set of time slots into a sequence based on a quality of each of the set of time slots and assigning the set physical channels to the time slots in a time slot order of the sequence (See column 3 lines 31-60 of Le Strat et al. for reference to measuring the quality of each of the available channels, or time slots, and selecting the best channel of a group of channels which are above the required threshold of acceptable signal quality, meaning there must be a value associated with the signal quality, with the quality of all the time slots being given a value according to the quality measurements, which creates a sequence from the best value to the worst value signal, with the time slots being allocated in the order starting with the best value signal). Le Strat et al. does not disclose that the device is a part of a radio network controller for using in a hybrid wireless time division multiple access/code division multiple access communication system.

With respect to claim 23, Le Strat et al. discloses a means for arranging the set of time slots into a sequence based on a quality of each of the set of time slots and a means for assigning the set physical channels to the time slots in a time slot order of the sequence (See column 3 lines 31-60 of Le Strat et al. for reference to measuring the quality of each of the available channels, or time slots, and selecting the best channel of a group of channels which are above the required threshold of acceptable signal quality,

meaning there must be a value associated with the signal quality, with the quality of all the time slots being given a value according to the quality measurements, which creates a sequence from the best value to the worst value signal, with the time slots being allocated in the order starting with the best value signal). Le Strat et al. does not disclose that the means is a part of a radio network controller for using in a hybrid wireless time division multiple access/code division multiple access communication system.

Olofsson et al., in the field of communications, discloses a radio network controller assigning physical channels to time slots in a hybrid wireless time division multiple access/code division multiple access communication system (See column 5 lines 4-17 and column 6 lines 6-14 of Olofsson et al. for reference to a base station controller 16, which acts as a radio network controller by performing radio resource management functions, in a hybrid CDMA and TDMA communication system). Using a radio network controller in a hybrid CDMA and TDMA communications system has the advantage providing a more efficient use of radio resources than in either a tradition CDMA or a traditional TDMA system.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Olofsson et al., to combine the use of a radio network controller in a hybrid wireless time division multiple access/code division multiple access communication system, as suggested by Olofsson et al., with the device and method of Le Strat et al., with the motivation being to provide a more efficient use of radio resources than in either a tradition CDMA or a traditional TDMA system.

With respect to claims 2, 13, and 24, Le Strat et al. discloses that the physical channels are physical channels of a user service (See column 3 lines 4-11 of Le Strat et al. for reference to the channels being used for calls, which are user services).

With respect to claims 4, 15, and 26, Le Strat et al. discloses that the quality is based on in part an interference measurement (See column 3 lines 31-52 of Le Strat et al. for reference to measuring a quality level which constitutes interference). Le Strat et al. does not disclose the quality being based on an allowed number of the provided physical channels to be assigned to that channel.

Olofsson et al., in the field of communications, discloses basing a measurement of how to allocate radio resources on a maximum limit of the number of time slots that may be used to send or receive data in a channel (See column 10 lines 15-28 of Olofsson et al. for reference to a maximum number of time slots that may be used to receive or transmit data). Basing a channel allocation on an allowed number of time slots to be assigned has the advantage of making sure that the maximum power allowed for a transmitter is not exceeded by assuring that the maximum number of time slot transmission per frame is not exceeded.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Olofsson et al., to combine basing a channel allocation on an allowed number of time slots to be assigned, as suggested by Olofsson et al., with the device and method of Le Strat et al., with the motivation being to make sure that the maximum power allowed for a transmitter is not exceeded by assuring that the maximum number of time slot transmission per frame is not exceeded.

5. Claims 3, 14, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Strat et al. in view of Olofsson et al. as applied to claims 1-2, 4, 12-13, 15, 23-24, and 26 above, and further in view of Shin (U.S. Pat. 6640105).

With respect to claims 3, 14, and 25, the combination of Le Strat et al. and Olofsson et al. does not disclose that the provided physical channels are physical channels of a code composite transport channel.

Shin, in the field of communications, discloses physical channels that are channels of a code composite transport channel (See column 4 lines 22-47 of Shin for reference to using a coded composite transport channel). Using a coded composite transport channel has the advantage of being able to multiplex multiple channels together for a single transmission.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Shin, to combine the use of a coded composite transport channel, as suggested by Shin, with the device and method of Le Strat et al. and Olofsson et al., with the motivation being to multiplex multiple channels together for a single transmission.

6. Claims 8, 19, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Strat et al. in view of Olofsson et al. as applied to claims 1-2, 4, 12-13, 15, 23-24, and 26 above, and further in view of Koorapaty et al. (U.S. Pat. 6631124).

With respect to claims 8, 19, and 30, Le Strat et al. discloses determining the quality of a downlink channel (See column 3 lines 31-52 of Le Strat for reference to measuring the quality of signals received by a mobile station, meaning the signals are on downlink channels). Le Strat et al. does not disclose that the quality is based on an allowed number of channels to be assigned to a time slot.

Olofsson et al., in the field of communications, discloses basing a measurement of how to allocate radio resources on a maximum limit of the number of time slots that may be used to send or receive data in a channel (See column 10 lines 15-28 of Olofsson et al. for reference to a maximum number of time slots that may be used to receive or transmit data). Basing a channel allocation on an allowed number of time slots to be assigned has the advantage of making sure that the maximum power allowed for a transmitter is not exceeded by assuring that the maximum number of time slot transmission per frame is not exceeded.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Olofsson et al., to combine basing a channel allocation on an allowed number of time slots to be assigned, as suggested by Olofsson et al., with the device and method of Le Strat et al., with the motivation being to make sure that the maximum power allowed for a transmitter is not exceeded by assuring that the maximum number of time slot transmission per frame is not exceeded.

The combination of Le Strat et al. and Olofsson et al. does not disclose basing a signal quality on the transmit power of a time slot.

Koorapaty et al., in the field of communications, discloses allocating resources based transmit power of time slots, which is a signal quality (See column 4 lines 12-23 of Koorapaty et al. for reference to allocating resources to based on an optimized power of time slots). Allocating resources based on transmit power of time slots has the advantage of allowing a system to better control radio resources by providing mobile units that require a higher power signal with a better chance to be allocated channels with higher power signals.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Koorapaty et al., to combine allocating resources based on the transmit power of time slots with the device and method of Le Strat et al. and Olofsson et al., with the motivation being to allow a system to better control radio resources by providing mobile units that require a higher power signal with a better chance to be allocated channels with higher power signals.

Allowable Subject Matter

7. Claims 5-7, 9-11, 16-18, 20-22, 27-29, and 31-32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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8. The following is a statement of reasons for the indication of allowable subject matter: The allowable subject matter all contains limitations similar to the limitations of Claim 5:

the set of time slots are arranged into a plurality of sequences by varying weights associated with the interference measurement and the allowed number associated with each of the set of time slots, and the assigning is performed on each sequence ... determining the highest quality one of the successful ones based on in part an overall interference and fragmentation of the assigned sequences.

The prior art of record fail to disclose or render obvious the plurality of sequences arranged by varying weights associate with interference and an allowed number of time slots.

Conclusion


9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cerwall et al. (U.S. Application 10/610827) discloses assigning channels/time slots based on interference and quality measurements. Andersson et al. (U.S. Pat. 6240125) discloses allocating channels based on interference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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